Land Use Change and Agricultural Growth in Rural Vietnam

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Introduction

- Agriculture continues playing a major role in Vietnam: two-thirds of the population in Vietnam still resides in rural areas and 44% the labor force is working in the agricultural, forestry and fishery sector.
- The effect of changes in land use for poverty reduction in controversial base on recent literatures:
  - On the one hand: Agricultural land use, in particular investments in agricultural land is positively associated with poverty reduction.
  - On the other hand: Rural poverty is becoming progressively de-linked from agricultural resources.

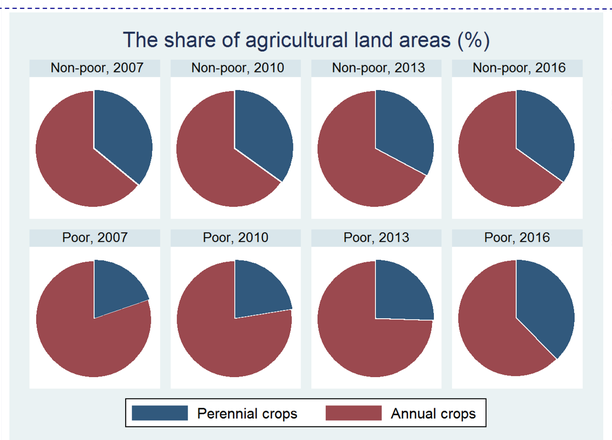
Research Objectives

- To evaluate land use changes over time in rural Vietnam
- To identify the determinants of agricultural land use change
- To assess the impact of land use change on welfare of rural Households

Data used

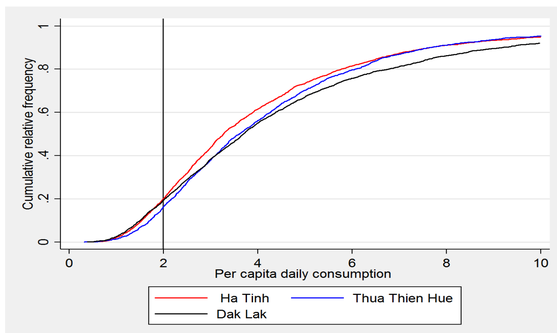
We use a comprehensive long-term panel data set of 1,811 identical respondents living in 220 villages in rural Vietnam (Ha Tinh, Thua Thien Hue and Dak Lak) (www.tvsep.de) collected across 4 waves from 2007 to 2016.
The household questionnaire contains comprehensive information about the demographic, economic and socio situation of households. The village questionnaire capture village-level data on population, infrastructure, and socio-economic structure of the village. We also combine this data set with historical rainfall data at village level

Descriptive results



-The share of perennial crops grown by the non-poor maintains at high level over time
-The poor group increases the share of perennial crops over time

-The poverty ratio is still at high level, around 20%
- Poverty threshold: $1.99 a day



Methodology

(i) Seemingly Unrelated Regression for Determinant of Land Use change (Model 1)

$$y_{it1} = \alpha_{it1} x_{it} + v_{vt} + \beta_{i1} + \mu_{it1}$$
$$y_{it2} = \alpha_{it2} x_{i2} + v_{vt} + \beta_{i2} + \mu_{it2}$$

Where y_{it1} , y_{it2} is the share of agricultural land of perennial crop and annual crop, respectively, of household *i* in year *t* .

(ii) Fixed Effects Model to asset impact of the share of perennial crops on consumption (Model 2)

$$\ln(y_{it}) = \alpha + x_{it}\beta + D_i T + \varepsilon_i$$

Dependent varibale: daily consumption per capita (log $PPP)

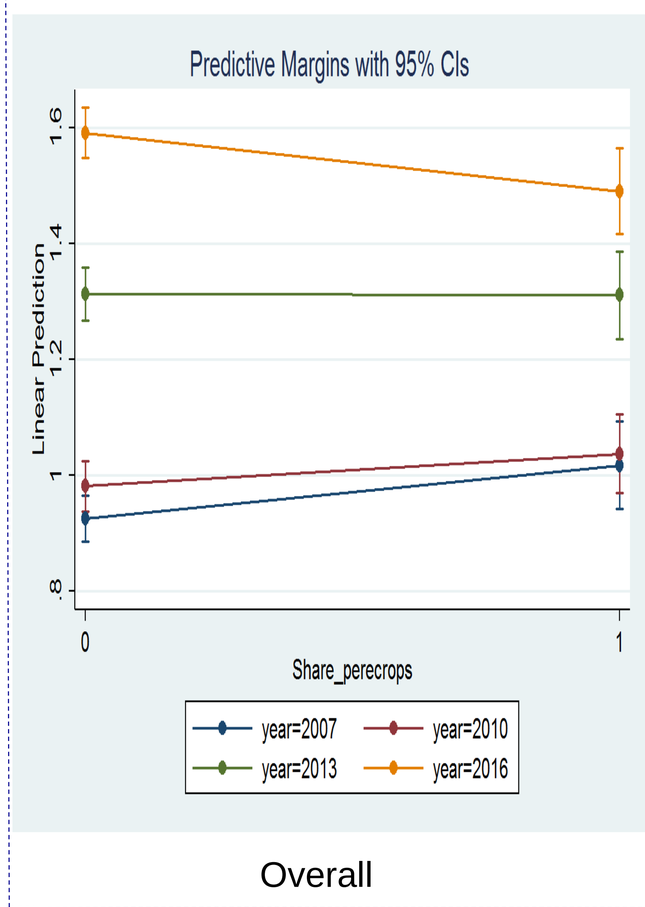
Empirical results

Model 1: Determinants of agricultural land use change (SURE)

Variables	Perennial crops		
	Overall	Poor	Non-poor
Crop land (hectare)	0.039***	0.083	0.008
	(0.014)	(0.054)	(0.014)
Owned share	-0.009	0.299***	0.001
	(0.035)	(0.075)	(0.039)
Agricultural labor	-0.009*	-0.018**	-0.006
	(0.005)	(0.008)	(0.005)
Education	0.005	0.020*	0.003
	(0.003)	(0.008)	(0.004)
Ethnic minority	0.463***	0.000	0.469***
	(0.142)	(0.000)	(0.122)
Age	0.001	0.002	-0.002
	(0.001)	(0.003)	(0.001)
Male head	0.104***	-0.051	0.091***
	(0.030)	(0.094)	(0.032)
Crop shock	-0.011*	-0.007	-0.010*
	(0.006)	(0.012)	(0.006)
Socio shock	-0.031***	0.040	-0.024**
	(0.011)	(0.026)	(0.011)
Rainfall	-0.024***	0.006	-0.039***
	(0.007)	(0.019)	(0.008)
Constant	0.301**	-0.142	0.582***
	(0.124)	(0.246)	(0.127)
Observation	1216	269	947

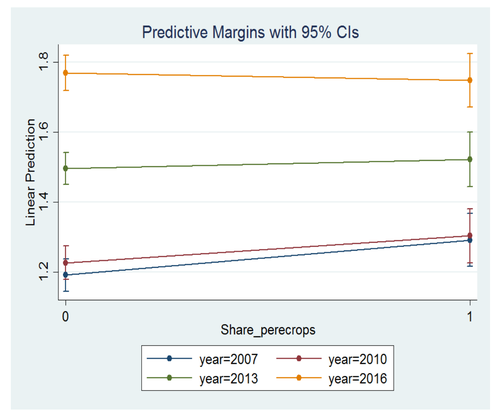
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Model 2: Impact of the perennial crop share on consumption (FE)

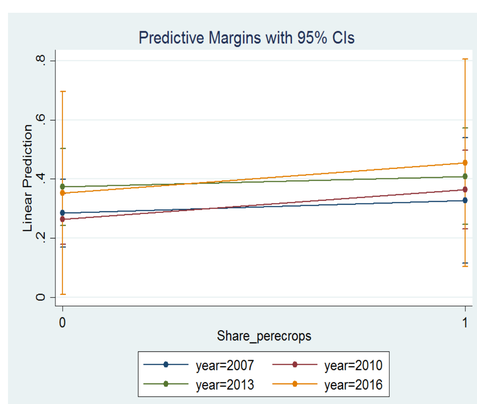


Overall

Non-poor group



Poor group



Discussion

- Both, poor and non-poor increase the share of perennial crops and reduce area planted to rice.
- The results of the determinants model explain 10%-11% of variation in agricultural land use. There are a number of factors that commonly affect land use allocation in two groups. However, there are also a number of factors that are unique in each group.
- The share of perennial crops has positive significant impact on a household's consumption. This positive effect is, however, decreasing over time.

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